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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the equipment receipt mold form tray equipment of printers, such as a copying machine, facsimile, and a printer, and relates a form tray, for example, a sheet paper cassette, a paper output tray, a double-sided tray, etc. to receipt mold form tray equipment withdrawal in the many directions especially.

[0002]

[Description of the Prior Art] In printers, such as a copying machine and facsimile, there is a copying machine as shown in drawing 25. this drawing -- setting -- 8050 -- for a paper output tray and 8100, as for a control unit and 110, a copying machine and 101 are [a medium tray and 51 / a double-sided tray and 52 / a pressure plate and 111] the manual bypass sections.

[0003] The copying machine 8100 shown in drawing 25 is in the condition that medium trays 8050 and 8050 were formed in the side face of a copying machine 8100, and jumped out, and the installation area of a copying machine 8100 was large.

[0004] In order to make small installation area of such a copying machine 8100, the thing of the gestalt which can contain the medium tray 9050 as shown in drawing 26 and drawing 27, and a paper output tray 52 in the body of equipment is known. Generally such a form tray gestalt is called frontloading.

[0005] Drawing 26 and drawing 27 have shown the copying machine with which the medium tray serves as frontloading, and explain this copying machine. In addition, the same sign is given to the same part as drawing 25.

[0006] The copying machine 9100 serves as the manuscript read station (scanner) 102, the imaging section 103, and the form stock section 105 that consists of two or more medium trays 9050 from the top, as shown in drawing 26 and drawing 27. If a manuscript is set and a copy carbon button is pushed, a form will be led to the imaging section 103 through the conveyance section 104 in the right-hand side of equipment from a medium tray 9050. The copy image of a manuscript is imprinted here, a toner image is fixed on a form in the fixing section 106, and it is discharged by the paper output tray 52 outside the equipment left. In addition, it is the requisite to place a copying machine 9100 in the wall case, and to use it. Therefore, if a copying machine 9100 is installed, a transverse plane will be decided, and a medium tray 9050 is made to lengthen and come out to the one direction by the side of this transverse plane.

[0007]

[Problem(s) to be Solved by the Invention] By the way, the requests of wanting you to raise the degree of freedom of installation of a copying machine in recent years are mounting. For example, they are if you want to put a copying machine on the middle of the room and to use it from both sides (a transverse plane and tooth back), the request of wanting to use it from a delivery side in a desk side. It thinks it easier to push the copy start key which extends a hand and is in a transverse plane, and a copy is performed from a tooth-back side, or there is actually a user who performs a copy from a delivery side rather than it turns and copies to a transverse plane.

[0008] Generally the form of amounts, such as 250 sheets and 500 sheets, is stocked at once by the form tray. Form supply will be performed comparatively frequently.

[0009] While using the copying machine from the tooth-back and feeding side, supposing a form is exhausted, although a user wants to perform actuation from a transverse plane and there is, he has to supply a form to the medium tray whose form was exhausted the surroundings at the front in order to supply a form. [no]

[0010] The purpose of this invention has a tooth back and the user who has taken the copy from the delivery side in offering the receipt mold form tray equipment it enables it to perform from the direction which takes a copy for form supply by enabling it to pull out a frontloading type medium tray not only to a transverse plane but to a tooth-back or delivery side.

[0011]

[Means for Solving the Problem] In the receipt mold form tray equipment with which the above-mentioned purpose is contained in a printer body Have an outer frame tray and a seating-rim tray, and an open field is established in at least one side of said outer frame tray. Said seating-rim tray is arranged withdrawal from the open field of said outer frame tray. It is attained by the 1st means which can pull out said outer frame tray and a seating-rim tray to coincidence by pulling out said outer frame tray to said body of equipment, or enabled it to pull out only said seating-rim tray to said body of equipment.

[0012] In said 1st means, the above-mentioned purpose is attained by the 2nd means which established the lock device locked so that said tray cannot be pulled out in other directions, while pulling out said tray in a certain direction.

[0013] In the receipt mold form tray equipment with which the above-mentioned purpose is contained in a printer body Along with a guide, can pull out a form tray from said body of equipment, and said form tray is contained withdrawal to a cross direction. It is attained by the 3rd means which established the lock device which contains said form tray on said body of equipment, arranged the lock release lever when pulling out said form tray to a before side in the before side, and arranged the lock release lever when pulling out said form tray to the backside in the backside.

[0014] In said 1st or 3rd means, the above-mentioned purpose is attained by the 4th means which prepared covering closed so that opening may not arise in the drawer section of other directions, while pulling out said tray in a certain direction.

[0015]

[Function] In said 1st means, form tray equipments of the printer receipt mold which can be pulled out in the many directions, such as a transverse plane, a delivery side and a transverse plane, and a tooth back, can be offered. Consequently, the printer which can be operated from many is possible.

[0016] In said 2nd means, while pulling out the form tray in a certain direction in printer receipt type form tray equipment withdrawal in the many directions, the form tray contained to equipment may be able to be pulled out in another direction. Since the lock device which cannot be pulled out on the form tray which can be pulled out in another direction at this time was established, breakage of the form tray which it becomes impossible to pull out a form tray in another direction, and has already been pulled out in it can be prevented.

[0017] In said 3rd means, the form tray of the printer receipt mold which can be pulled out to the 2-way of a transverse plane and a tooth back can be offered. Moreover, this device is still easier than said 1st means, and it is equipment of low cost more. Consequently, the printer which can be operated from an order 2-way is possible. Moreover, the form tray of a withdrawal printer receipt mold can be offered in the three directions with the combination of said the 1st and 3rd means.

[0018] In said 4th means, while pulling out the form tray in a certain direction in the printer receipt type form tray withdrawal in the many directions, some which opening produces are in a printer body. Since the shutter device was established in such a thing so that opening might not arise, breakage of the tray which occurs by shutting a form tray where a thing is accidentally inserted into this opening, and the injury produced by shutting a form tray to opening where a hand is pinched can be prevented.

[0019]

[Example] Hereafter, the example of this invention is explained based on a drawing. The perspective

view in which drawing 1 thru/or drawing 4 showing the 1st example of the receipt mold form tray equipment concerning this invention, and showing the copying machine overview for which drawing 1 used the 1st example, the perspective view in which drawing 2 shows the 1st example, the perspective view in which drawing 3 shows the 1st example, and drawing 4 are the perspective views showing the 1st example. In addition, the same sign is given to the same part as the conventional example.

[0020] The medium tray 1050 has double structure, as shown in drawing 2. As shown in drawing 3 and drawing 4, sliders (for outside trays) 72 and 72 are formed in the left and right laterals of the outside tray 1061, respectively, these sliders (for outside trays) 72 and 72 are counteracted, the slide rails 75 and 75 are attached in the body of equipment, respectively, and a medium tray 1050 can be detached now in the direction of a transverse plane (the direction of arrow-head A of drawing 3) and attached from equipment 2100 body along with this (pulling out and set).

[0021] The notching section 77 is formed in the bottom to which the slider 72 has clung by one side of the outside medium tray 1061. In this example, the notching section 77 is in a feeding side. The 2nd slide rail 76 and 76 which guides the inside medium tray 1062 is formed in the inside section of the notching section 77 of the outside medium tray 1061, and sliders 73 and 73 are formed in the side face of the inside medium tray 1062, respectively. And the inside medium tray 1062 can be detached now from the notching section 77 and attached in the direction of B of drawing 4 along with the 2nd slide rail 76 and 76 (pulling out and set).

[0022] the sheathing covering 91 of copying machine 1100 body -- the outside medium tray 1061 and the inside medium tray 1062 -- opening 48 is formed, respectively so that it can pull out directly. If the outside medium tray 1061 is pulled out from copying machine 1100 body, the inside medium tray 1062 will also be contained by the outside medium tray 1061, and will be pulled out by coincidence in the condition. If the inside medium tray 1062 is pulled out from copying machine 1100 body, the outside medium tray 1061 will remain in the body 1100 of a copying machine. In addition, the tip of the inside medium tray 1062 is located inside the frame of a copying machine 1100 so that it may appear in the outside medium tray 1061 and the inside medium tray 1062 can move.

[0023] By making it such a configuration, like drawing 1, it pulls out to a transverse-plane side and a delivery side 2-way, and the receipt mold form tray equipment which can perform form supply can be offered.

[0024] Of course, what uses the opening side face of the notching section 77 of the outside medium tray 1061 as a conveyance road side and a tooth back, and is being considered as a configuration which pulls out the inside medium tray 1062 in the direction belongs to this invention.

[0025] Next, in case it puts on the middle of the room and a copying machine is used from the 2-way of a transverse plane and a tooth back, the 2nd example which enabled form supply is given and explained to drawing 5 - drawing 10 from both sides. The explanatory view showing the copying machine overview using the 2nd example of the receipt mold form tray equipment which drawing 5 requires for this invention, The explanatory view in which drawing 6 shows the medium tray of the 2nd example, and drawing 7 The handle of the lock condition of the medium tray of the 2nd example, The explanatory view and drawing 8 which show the detail of the lock section The handle of the lock condition of the medium tray of the 2nd example, The lock section is expanded and they are the shown explanatory view, the explanatory view in which drawing 9 shows the handle at the time of lock discharge of the medium tray of the 2nd example, and the detail of the lock section, and the explanatory view which the handle at the time of lock discharge of the medium tray of the 2nd example and the lock section expand drawing 10, and is shown. In addition, in this 2nd example, a transverse plane is called a before side.

[0026] In this 2nd example, as shown in drawing 5 and drawing 6, medium trays 2063 and 2063 are contained withdrawal from the body 2100 of a copying machine along with the slide rail 74. Lock pawl 82a or 82b is prepared in both ends at the slider 72. If lock pawl 82b in the backside is canceled, a medium tray 2063 can be pulled out to a before side, and if lock pawl 82a by the side of before is canceled, it can pull out to the backside.

[0027] As shown in drawing 6 - drawing 8, it pulls out before and after a medium tray 2063, and the handles 88 and 88 of business are formed, and in a handle 88 and 88, the levers 80a and 80b of a V

character configuration are supported to revolve with the flexion, and are prepared. Lever 80b by the side of before [this] and lock pawl 82b on the backside are connected by wire 81b, and lever 80a on the backside and lock pawl 82a by the side of before are connected by wire 81a.

[0028] Actuation of this 2nd example is explained. A form is exhausted, and if a user is going to pull out a medium tray 2063 and lengthens a handle 88, lever 80b (or 80a) which is inside a handle 88 will be lengthened. As the wire 81 of lever 80b (or 80a) is lengthened, lock pawl 82b (or 82a) enters along the inside of the guide 83 of a slider configuration and it is shown in drawing 9 and drawing 10, lock pawl 82b (or 82a) separates from the edge of a slider 72, and a lock device is canceled. A medium tray 2063 can be pulled out in this condition.

[0029] a form -- supplying -- a medium tray 2063 -- perfect -- the inside of a copying machine 2100 -- pushing in (it being in the condition of drawing 5) -- lock pawl 82b (or 82a) is extruded besides the guide 83 of a slider configuration by the force of a spring 87. That is, in this condition, since the handle 88 is not lengthened, as lock pawl 82b (or 82a) is extruded besides the guide 83 of a slider configuration by the force of a spring 87 and it is shown in a projection and drawing 7, a medium tray 2063 is locked.

[0030] As a medium tray withdrawal forward and backward, since the device of this 2nd example is easy structure, it is made at a low price. Consequently, the printer which can be operated from an order 2-way is possible.

[0031] Next, the device of said 1st example shown in drawing 1 - drawing 4 and the device of said 2nd example shown in drawing 5 - drawing 10 are combined, and the 3rd example of the medium tray equipment whose disconnection was enabled at the transverse-plane, delivery, and tooth-back side is explained. The explanatory view and drawing 12 which show the copying machine overview using the 3 direction disconnection form tray of the 3rd example of the receipt mold form tray equipment which drawing 11 requires for this invention are the perspective view of the 3 direction disconnection form tray of the 3rd example. In addition, the same sign is given to the same part as said example.

[0032] The medium tray 64 which can be contained in a copying machine 3100 has double structure. The outside medium tray 65 is withdrawal in order both directions, and the lock release lever 80 when pulling out the lock release lever 80 when pulling out the outside medium tray 65 to a before side behind to a before side is in the backside. There is the notching section 77 in the delivery side of the outside medium tray 65, and the inside medium tray 66 can pull out now from here independently to a delivery side. In addition, 81 is a wire and 82 is a lock pawl. The receipt mold form tray equipment which can supply a form from three directions can consist of this 3rd example.

[0033] Next, the 4th example of this invention is explained. The perspective view of the 3 direction disconnection form tray of the 4th example of the receipt mold form tray equipment which drawing 13 requires for this invention, The explanatory view in which drawing 14 (a) shows the detail at the time of lock disconnection of the lock section (only one side) of the 4th example, They are the explanatory view which drawing 14 (b) is expanded at the time of lock disconnection of the lock section, and is shown, the explanatory view in which drawing 15 (a) shows the detail at the time of the lock of the lock section (only one side) of the 4th example, and the explanatory view which drawing 15 (b) is expanded at the time of the lock of the lock section, and is shown. In addition, the same sign is given to the same part as said example.

[0034] In this 4th example, as shown in drawing 13 thru/or drawing 15, the lock device 30 of the outside medium tray 4061 in which attachment and detachment of the inside medium tray 4062 are interlocked with, and it operates is established.

[0035] When the inside medium tray 4062 is contained by the outside medium tray 4061, the spring made the lock pawl of the lock member 32 the crevice 31 of the inside medium tray 66, and it is settled in it by the force. The lock pawl of the lock member 32 does not go into the notching hole 34 of a slider, but the outside medium tray 4061 becomes withdrawal along with the slide rail 75.

[0036] Where the outside medium tray 4061 is contained on the body of a copying machine, suppose that the inside medium tray 4062 was pulled out. The head (lock pawl) of the lock member 32 in an order 2-way is pushed at the pars basilaris ossis occipitalis of the inside medium tray 4062, the lock pawl of the lock member 32 enters the notching hole 34 of a slider, and the outside medium tray 4061 is

locked to the slide rail 75. If the inside medium tray 4062 is again contained on the body of a copying machine, the lock pawl of the lock member 32 will return to the crevice 31 of the inside medium tray 4062. In this way, the outside medium tray 4061 will be in an open condition to a slider 72.

[0037] By making it the device of such said 4th example, one is not going to notice the inside medium tray 4062 pulled out, but it is going to pull out the outside medium tray 4061, and a possibility of damaging medium trays 4061 and 4062 is lost. That is, when the inside medium tray 4062 is pulled out out of the copying machine, it is going to pull out the outside medium tray 4061, the inside medium tray 4062 collides with the body of a copying machine, AKYUREITO and the slider which exist inside the outside medium tray 4061 bend, and there is nothing it becomes impossible for the inside medium tray 4062 to contain in the outside medium tray 4061.

[0038] Next, the 5th example of this invention is explained with reference to drawing 16 - drawing 18. Drawing of longitudinal section in which drawing of longitudinal section in which drawing 16 (a) and (b) show the condition at the time of shutter disconnection of the 5th example and a front view, drawing 17 (a), and (b) show the condition at the time of shutter actuation of the 5th example and a front view, and drawing 18 are the explanatory views showing the sliding part of the shutter of the 5th example, and a medium tray.

[0039] In said 1st example, when the outside medium tray 1061 is pulled out, the drawer section of the medium tray 1062 inside the body 1100 of a copying machine serves as opening 48. When an object shuts medium trays 1061 and 1062 to this opening 48 in the state of *****, there is a possibility that medium trays 1061 and 1062 or a copying machine 1100 may be damaged. Or while people are editing this opening 48 accidentally, when medium trays 1061 and 1062 are shut, there is also a possibility that it may be injured at a hand.

[0040] In order to prevent such fault, when medium trays 1061 and 1062 are pulled out in a certain direction in what can be pulled out in the many directions by the body receipt mold medium tray of a copying machine, in the example of **** 5, a shutter 40 is formed so that opening 48 may not arise in other directions of a drawer.

[0041] The 5th example in the medium tray equipment of the double structure which can be pulled out to the transverse plane and delivery side 2-way like said drawing 1 - drawing 4 is shown in drawing 16 - drawing 18. In this 5th example, the shutter 40 is formed by the body 1100 of a copying machine on the opening 48 which pulls out the inside medium tray 1062. This shutter 40 serves as a configuration which has heights 42 in the tooth-back side of a copying machine 1100. Heights 42 are in the transverse-plane side of the notching section 77 of the outside medium tray 1061, and the tooth-back side serves as the cut section 43. The side by the side of the transverse plane of a shutter 40 and the side by the side of the transverse plane of heights 42 serve as the taper section. Moreover, the taper section is formed also for the cut section 43 the tooth-back side of the heights 42 of the outside medium tray 1061. The include angle of these taper sections is equal.

[0042] the time of the outside medium tray 1061 being contained by the body 1100 of a copying machine -- the heights 41 of a shutter 40, and the base of the notching section 77 of the outside medium tray 1062 -- moreover, the inferior surface of tongue of a shutter 40 and the heights 42 of the outside medium tray 1061 touch, respectively. A shutter 40 is raised by heights 42 and the opening 48 which can pull out the inside medium tray 1062 is formed.

[0043] Next, actuation of the 5th example is explained. From the condition of drawing 16, if the outside medium tray 1061 is pulled out, the taper section of a shutter 40 and medium trays 1061 and 1062 begins contact, and the shutter 40 falls gradually. The notching section 77 of the inferior surface of tongue of a shutter 40 and the outside medium tray 1061 contacts, and a shutter 40 closes the opening 48 of copying machine 1100 body for pulling out the inside medium tray 1062 (drawing 17).

[0044] In addition, while pulling out the outside medium tray 1061 after this, the inferior surface of tongue of a shutter 40 and the base of the notching section 77 of the outside medium tray 1061 are a sliding surface (drawing 18). Therefore, as for this part, it is desirable to form by an ingredient with small coefficient of friction, for example, polyacetal, fluororesin, etc.

[0045] Next, a motion of the shutter 40 when containing the outside medium tray 1061 is explained.

From the condition of drawing 17 , it is begun to stuff the medium tray 1061 of the outside currently pulled out into copying machine 1100 body. While the inferior surface of tongue of a shutter 40 and the base of the notching section 77 of the outside medium tray 1061 grind, the outside medium tray 1061 goes into the body 1100 of equipment. Just before receipt of the outside medium tray 1061 is completed, the taper section of a shutter 40 and the outside medium tray 1061 starts contact, and a shutter 40 begins to be raised. if the outside medium tray 1061 is contained in a copying machine 1100 -- the base of the heights 41 of a shutter 40, and the notching section 77 of the outside medium tray 1061 -- moreover, the outside heights 42 and the outside shutter 40 of a medium tray 1061 contact, and as shown in drawing 16 , a shutter 40 will be in an open condition.

[0046] Making it the device of such 5th example can close the opening 48 for pulling out the inside medium tray 1062 produced by pulling out the outside medium tray 1061.

[0047] Next, explanation of said 2nd example shown in drawing 5 - drawing 10 and the 6th example of the medium tray equipment of a 2-way open sand mold same type is given using drawing 19 and drawing 20 . The perspective view at the time of shutter disconnection of the 6th example of the receipt mold form tray equipment which drawing 19 requires for this invention, and drawing 20 are the perspective views at the time of shutter actuation of the 6th example.

[0048] In this 6th example, the character type shutter 20 of KO is arranged on opening of the both sides (order side) of a medium tray 6063. The taper sections 20a and 20a are formed in the both ends 27 and 27 of the character of KO of this shutter 20. It pulls out on the slide side (right-and-left side of drawing 19) of a medium tray 6063, and the taper-like notching sections 25 and 25 are formed near the field (order side).

[0049] When the medium tray 6063 is contained by the body of equipment, as shown in drawing 19 , the edges 27 and 27 of the character of KO of a shutter 20 have ridden on the top-face part without the notching sections 25 and 25 of a medium tray 6063, and the shutter 20 is in the open condition.

[0050] Suppose that the medium tray 6063 was pulled out to the before side (the direction of an arrow head of drawing 19). The shutter 20 by the side of before touches the slide side of a medium tray 6063, and is not closed. Taper section 20a of the taper side of the notching sections 25 and 25 and the character of KO of a shutter 20 contacts, and a shutter 20 descends and closes the shutter 20 on the backside gradually along with a guide 23. after contact of taper section 20a of the character of the taper side of the notching sections 25 and 25 of a medium tray 6063 and KO of a shutter 20 is completed, it is shown in drawing 20 -- as -- a shutter 20 -- falling -- as -- the backside -- opening 48 is closed.

[0051] Next, a motion of the shutter 20 in case the medium tray 6063 is pulled out at the before side and contained in a copying machine 1100 is explained. Although not illustrated, the shutter 20 on the backside and the shutter by the side of before [same] have been wide supported and opened to the slide side of a medium tray 6063 (refer to drawing 20). Just before receipt of a medium tray 6063 ends the shutter 20 on the backside, taper section 20a of the both ends 27 of the character of KO of a shutter 20 and the taper side of the notching sections 25 and 25 of a medium tray 6063 start contact. With these tapers, the shutter 20 is raised gradually. When receipt of a medium tray 6063 is completed, the edge 27 of the character of KO of a shutter 20 touches the part without the notching section 25 of the slide side of a medium tray 6063, and as shown in drawing 19 , the opening 48 for the drawers on the backside [a medium tray 6063] opens it.

[0052] It is better to form with an ingredient with small coefficient of friction, since it is opened and closed, sliding on taper section 20a of the both ends 27 of the character of KO of a shutter 20 and an inferior surface of tongue, and the top face of the slide side of a medium tray 6063. In addition, the part shown by hatching by drawing 20 is a sliding surface, and this part slides with the shutter by the side of before in this example.

[0053] Next, the 7th example of this invention is explained with reference to drawing 21 - drawing 23 . Drawing 21 is [the front view at the time of shutter closing of the 7th example and drawing 23 of the front view at the time of shutter actuation of the 7th example and drawing 22] the front views at the time of shutter actuation of the 7th example. Although said 6th example explained the shutter opened and closed along with a guide, the 7th example is explained as another example. The shutter 7040 in this

7th example was fished on equipment 7100 body by the link 120,120, and is gone down. There are heights 7042 in the transverse-plane side of the outside medium tray 7061. Taper section 7042a is formed in the tooth-back side (it sets to drawing and is left-hand side) of heights 7042, and the taper section and 7040a are formed in the transverse-plane side (it sets to drawing and is right-hand side) of a shutter 7040, respectively. The include angle of the taper of these taper sections 7040a and 7042a is set up equally.

[0054] Next, actuation of the 7th example is explained. When having contained the outside medium tray 7061 on equipment 7100 body, as shown in drawing 21 , a shutter 7040 is raised by the heights 7042 of the outside medium tray 7061, and the opening 48 for pulling out the inside medium tray 7062 is open.

[0055] And if it begins to pull out the outside medium tray 7061, a shutter 7040 will descend, sliding in the outside medium tray 7061 and the taper sections 7042a and 7040a of a shutter 7040, as shown in drawing 23 . Since the link 120,120 which has fished the shutter 7040 at this time is an parallel link, its vertical side of a shutter 7040 is always level.

[0056] if the outside medium tray 7061 is pulled out to some extent until as shown in drawing 22 , it will descend further and a shutter 7040 will close the opening 48 for pulling out the inside medium tray 7062.

[0057] In addition, when containing the outside medium tray 7061 on copying machine 7100 body, a shutter 7040 is gradually raised, as shown along with taper section 7042a of the outside medium tray 7061 at drawing 23 from the condition of drawing 22 , and will be in the condition of drawing 21 at the above-mentioned and reverse.

[0058] The direction which makes a shutter 7040 open and close using a link 120 like this 7th example can open and close still more smoothly than what opens and closes a shutter along with a guide.

[0059] Furthermore, the 8th example is explained. The explanatory view in which drawing 24 (a) shows the condition at the time of shutter disconnection of the 8th example, and drawing 24 (b) are the explanatory views showing the condition at the time of shutter closing. The shutter 8040 is hung by the wire 122 in this 8th example. The edge of this wire 122 has pulley 121,121 -- taken about, and is being fixed to the migration child 124. This migration child 124 is contained free [migration into a guide 126]. The spring with which 123 intervened between guides 126 with the migration child 124, and 125 are the stoppers with which the migration child 124 took care to have not jumped out of a guide 126.

[0060] Next, actuation of the 8th example is explained. When having contained the outside medium tray 8061 on the body of a copying machine, as shown in drawing 24 (a), the contact section 27 of the outside medium tray 8061 resists a spring 123, and is pushing in the migration child 124. Where the wire 122 which had the end fixed by this migration child 124 is pulled, the shutter 8040 is raised, and in it, it is opening the opening 48 for pulling out the inside medium tray 8062.

[0061] If the outside medium tray 8061 is pulled out from the body of a copying machine, the migration child 124 will move to a transverse-plane side (it is the right at drawing 24) by the force of a spring 123, and will move and stop the migration child 124 till the place of a stopper 125. As shown in drawing 24 (b), a shutter 8040 falls completely, and the shutter 8040 which is in the reverse edge of a wire 122 with migration of this migration child 124 is closed ** about opening 48, when it descends and the migration child 124 moves till the place of a stopper 125.

[0062] In addition, if opening for pulling out a medium tray can be prevented from the ability doing no matter the breaker style of a shutter may be what thing, it cannot be overemphasized that it belongs to this invention.

[0063] Moreover, although said all explanation mentioned the medium tray equipment of a copying machine as the example, this invention is not restricted to this, and if it is the same configuration, it belongs to this invention also about form tray equipments, such as a paper output tray of a receipt mold of printers, such as a printer and facsimile, and a double-sided tray.

[0064]

[Effect of the Invention] According to invention according to claim 1, the printer which can offer form tray equipments of the printer receipt mold which can be pulled out in the many directions, such as a transverse plane, a delivery side and a transverse plane, and a tooth back, consequently can be operated

from many is possible.

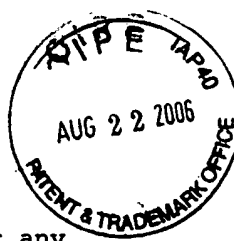
[0065] According to invention according to claim 2, while pulling out the form tray in a certain direction in the receipt type form tray equipment of a printer withdrawal in the many directions, the form tray contained to equipment may be able to be pulled out in another direction. Since the lock device which cannot be pulled out on the form tray which can be pulled out in another direction at this time was established, breakage of the form tray which it becomes impossible to pull out a form tray in another direction, and has already been pulled out in it can be prevented.

[0066] According to invention according to claim 3, the printer which can offer the form tray equipment of the printer receipt mold which can be pulled out to the 2-way of a transverse plane and a tooth back, and can be more easy, and can offer the form tray equipment of low cost more, consequently can be operated from an order 2-way is possible.

[0067] Moreover, the device of claim 1 and claim 3 can be provided with the form tray equipment of a printer receipt mold withdrawal in three directions with combination.

[0068] Since the shutter device which closes opening produced on a printer body established according to invention according to claim 4 while pulling out the form tray in a certain direction in printer receipt type form tray equipment withdrawal in the many directions, breakage of the tray which occurs by shutting a form tray where a thing is accidentally inserted into this opening, and the injury which produce by shutting a form tray to opening where a hand is pinched can prevent.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the equipment receipt mold form tray equipment of printers, such as a copying machine, facsimile, and a printer, and relates a form tray, for example, a sheet paper cassette, a paper output tray, a double-sided tray, etc. to receipt mold form tray equipment withdrawal in the many directions especially.

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PRIOR ART

[Description of the Prior Art] In printers, such as a copying machine and facsimile, there is a copying machine as shown in drawing 25. this drawing -- setting -- 8050 -- for a paper output tray and 8100, as for a control unit and 110, a copying machine and 101 are [a medium tray and 51 / a double-sided tray and 52 / a pressure plate and 111] the manual bypass sections.

[0003] The copying machine 8100 shown in drawing 25 is in the condition that medium trays 8050 and 8050 were formed in the side face of a copying machine 8100, and jumped out, and the installation area of a copying machine 8100 was large.

[0004] In order to make small installation area of such a copying machine 8100, the thing of the gestalt which can contain the medium tray 9050 as shown in drawing 26 and drawing 27, and a paper output tray 52 in the body of equipment is known. Generally such a form tray gestalt is called frontloading.

[0005] Drawing 26 and drawing 27 have shown the copying machine with which the medium tray serves as frontloading, and explain this copying machine. In addition, the same sign is given to the same part as drawing 25.

[0006] The copying machine 9100 serves as the manuscript read station (scanner) 102, the imaging section 103, and the form stock section 105 that consists of two or more medium trays 9050 from the top, as shown in drawing 26 and drawing 27. If a manuscript is set and a copy carbon button is pushed, a form will be led to the imaging section 103 through the conveyance section 104 in the right-hand side of equipment from a medium tray 9050. The copy image of a manuscript is imprinted here, a toner image is fixed on a form in the fixing section 106, and it is discharged by the paper output tray 52 outside the equipment left. In addition, it is the requisite to place a copying machine 9100 in the wall case, and to use it. Therefore, if a copying machine 9100 is installed, a transverse plane will be decided, and a medium tray 9050 is made to lengthen and come out to the one direction by the side of this transverse plane.

[Translation done.]

JAPANESE

[JP,06-247569,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE
INVENTION TECHNICAL PROBLEM MEANS OPERATION EXAMPLE DESCRIPTION OF
DRAWINGS DRAWINGS

[Translation done.]

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MEANS

[Means for Solving the Problem] In the receipt mold form tray equipment with which the above-mentioned purpose is contained in a printer body Have an outer frame tray and a seating-rim tray, and an open field is established in at least one side of said outer frame tray. Said seating-rim tray is arranged withdrawal from the open field of said outer frame tray. It is attained by the 1st means which can pull out said outer frame tray and a seating-rim tray to coincidence by pulling out said outer frame tray to said body of equipment, or enabled it to pull out only said seating-rim tray to said body of equipment. [0012] In said 1st means, the above-mentioned purpose is attained by the 2nd means which established the lock device locked so that said tray cannot be pulled out in other directions, while pulling out said tray in a certain direction.

[0013] In the receipt mold form tray equipment with which the above-mentioned purpose is contained in a printer body Along with a guide, can pull out a form tray from said body of equipment, and said form tray is contained withdrawal to a cross direction. It is attained by the 3rd means which established the lock device which contains said form tray on said body of equipment, arranged the lock release lever when pulling out said form tray to a before side in the before side, and arranged the lock release lever when pulling out said form tray to the backside in the backside.

[0014] In said 1st or 3rd means, the above-mentioned purpose is attained by the 4th means which prepared covering closed so that opening may not arise in the drawer section of other directions, while pulling out said tray in a certain direction.

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OPERATION

[Function] In said 1st means, form tray equipments of the printer receipt mold which can be pulled out in the many directions, such as a transverse plane, a delivery side and a transverse plane, and a tooth back, can be offered. Consequently, the printer which can be operated from many is possible.

[0016] In said 2nd means, while pulling out the form tray in a certain direction in printer receipt type form tray equipment withdrawal in the many directions, the form tray contained to equipment may be able to be pulled out in another direction. Since the lock device which cannot be pulled out on the form tray which can be pulled out in another direction at this time was established, breakage of the form tray which it becomes impossible to pull out a form tray in another direction, and has already been pulled out in it can be prevented.

[0017] In said 3rd means, the form tray of the printer receipt mold which can be pulled out to the 2-way of a transverse plane and a tooth back can be offered. Moreover, this device is still easier than said 1st means, and it is equipment of low cost more. Consequently, the printer which can be operated from an order 2-way is possible. Moreover, the form tray of a withdrawal printer receipt mold can be offered in the three directions with the combination of said the 1st and 3rd means.

[0018] In said 4th means, while pulling out the form tray in a certain direction in the printer receipt type form tray withdrawal in the many directions, some which opening produces are in a printer body. Since the shutter device was established in such a thing so that opening might not arise, breakage of the tray which occurs by shutting a form tray where a thing is accidentally inserted into this opening, and the injury produced by shutting a form tray to opening where a hand is pinched can be prevented.

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EXAMPLE

[Example] Hereafter, the example of this invention is explained based on a drawing. The perspective view in which drawing 1 thru/or drawing 4 showing the 1st example of the receipt mold form tray equipment concerning this invention, and showing the copying machine overview for which drawing 1 used the 1st example, the perspective view in which drawing 2 shows the 1st example, the perspective view in which drawing 3 shows the 1st example, and drawing 4 are the perspective views showing the 1st example. In addition, the same sign is given to the same part as the conventional example.

[0020] The medium tray 1050 has double structure, as shown in drawing 2. As shown in drawing 3 and drawing 4, sliders (for outside trays) 72 and 72 are formed in the left and right laterals of the outside tray 1061, respectively, these sliders (for outside trays) 72 and 72 are counteracted, the slide rails 75 and 75 are attached in the body of equipment, respectively, and a medium tray 1050 can be detached now in the direction of a transverse plane (the direction of arrow-head A of drawing 3) and attached from equipment 2100 body along with this (pulling out and set).

[0021] The notching section 77 is formed in the bottom to which the slider 72 has clung by one side of the outside medium tray 1061. In this example, the notching section 77 is in a feeding side. The 2nd slide rail 76 and 76 which guides the inside medium tray 1062 is formed in the inside section of the notching section 77 of the outside medium tray 1061, and sliders 73 and 73 are formed in the side face of the inside medium tray 1062, respectively. And the inside medium tray 1062 can be detached now from the notching section 77 and attached in the direction of B of drawing 4 along with the 2nd slide rail 76 and 76 (pulling out and set).

[0022] the sheathing covering 91 of copying machine 1100 body -- the outside medium tray 1061 and the inside medium tray 1062 -- opening 48 is formed, respectively so that it can pull out directly. If the outside medium tray 1061 is pulled out from copying machine 1100 body, the inside medium tray 1062 will also be contained by the outside medium tray 1061, and will be pulled out by coincidence in the condition. If the inside medium tray 1062 is pulled out from copying machine 1100 body, the outside medium tray 1061 will remain in the body 1100 of a copying machine. In addition, the tip of the inside medium tray 1062 is located inside the frame of a copying machine 1100 so that it may appear in the outside medium tray 1061 and the inside medium tray 1062 can move.

[0023] By making it such a configuration, like drawing 1, it pulls out to a transverse-plane side and a delivery side 2-way, and the receipt mold form tray equipment which can perform form supply can be offered.

[0024] Of course, what uses the opening side face of the notching section 77 of the outside medium tray 1061 as a conveyance road side and a tooth back, and is being considered as a configuration which pulls out the inside medium tray 1062 in the direction belongs to this invention.

[0025] Next, in case it puts on the middle of the room and a copying machine is used from the 2-way of a transverse plane and a tooth back, the 2nd example which enabled form supply is given and explained to drawing 5 - drawing 10 from both sides. The explanatory view showing the copying machine overview using the 2nd example of the receipt mold form tray equipment which drawing 5 requires for this invention, The explanatory view in which drawing 6 shows the medium tray of the 2nd example,

and drawing 7 The handle of the lock condition of the medium tray of the 2nd example, The explanatory view and drawing 8 which show the detail of the lock section The handle of the lock condition of the medium tray of the 2nd example, The lock section is expanded and they are the shown explanatory view, the explanatory view in which drawing 9 shows the handle at the time of lock discharge of the medium tray of the 2nd example, and the detail of the lock section, and the explanatory view which the handle at the time of lock discharge of the medium tray of the 2nd example and the lock section expand drawing 10 , and is shown. In addition, in this 2nd example, a transverse plane is called a before side.

[0026] In this 2nd example, as shown in drawing 5 and drawing 6 , medium trays 2063 and 2063 are contained withdrawal from the body 2100 of a copying machine along with the slide rail 74. Lock pawl 82a or 82b is prepared in both ends at the slider 72. If lock pawl 82b in the backside is canceled, a medium tray 2063 can be pulled out to a before side, and if lock pawl 82a by the side of before is canceled, it can pull out to the backside.

[0027] As shown in drawing 6 - drawing 8 , it pulls out before and after a medium tray 2063, and the handles 88 and 88 of business are formed, and in a handle 88 and 88, the levers 80a and 80b of a V character configuration are supported to revolve with the flexion, and are prepared. Lever 80b by the side of before [this] and lock pawl 82b on the backside are connected by wire 81b, and lever 80a on the backside and lock pawl 82a by the side of before are connected by wire 81a.

[0028] Actuation of this 2nd example is explained. A form is exhausted, and if a user is going to pull out a medium tray 2063 and lengthens a handle 88, lever 80b (or 80a) which is inside a handle 88 will be lengthened. As the wire 81 of lever 80b (or 80a) is lengthened, lock pawl 82b (or 82a) enters along the inside of the guide 83 of a slider configuration and it is shown in drawing 9 and drawing 10 , lock pawl 82b (or 82a) separates from the edge of a slider 72, and a lock device is canceled. A medium tray 2063 can be pulled out in this condition.

[0029] a form -- supplying -- a medium tray 2063 -- perfect -- the inside of a copying machine 2100 -- pushing in (it being in the condition of drawing 5) -- lock pawl 82b (or 82a) is extruded besides the guide 83 of a slider configuration by the force of a spring 87. That is, in this condition, since the handle 88 is not lengthened, as lock pawl 82b (or 82a) is extruded besides the guide 83 of a slider configuration by the force of a spring 87 and it is shown in a projection and drawing 7 , a medium tray 2063 is locked.

[0030] As a medium tray withdrawal forward and backward, since the device of this 2nd example is easy structure, it is made at a low price. Consequently, the printer which can be operated from an order 2-way is possible.

[0031] Next, the device of said 1st example shown in drawing 1 - drawing 4 and the device of said 2nd example shown in drawing 5 - drawing 10 are combined, and the 3rd example of the medium tray equipment whose disconnection was enabled at the transverse-plane, delivery, and tooth-back side is explained. The explanatory view and drawing 12 which show the copying machine overview using the 3 direction disconnection form tray of the 3rd example of the receipt mold form tray equipment which drawing 11 requires for this invention are the perspective view of the 3 direction disconnection form tray of the 3rd example. In addition, the same sign is given to the same part as said example.

[0032] The medium tray 64 which can be contained in a copying machine 3100 has double structure. The outside medium tray 65 is withdrawal in order both directions, and the lock release lever 80 when pulling out the lock release lever 80 when pulling out the outside medium tray 65 to a before side behind to a before side is in the backside. There is the notching section 77 in the delivery side of the outside medium tray 65, and the inside medium tray 66 can pull out now from here independently to a delivery side. In addition, 81 is a wire and 82 is a lock pawl. The receipt mold form tray equipment which can supply a form from three directions can consist of this 3rd example.

[0033] Next, the 4th example of this invention is explained. The perspective view of the 3 direction disconnection form tray of the 4th example of the receipt mold form tray equipment which drawing 13 requires for this invention, The explanatory view in which drawing 14 (a) shows the detail at the time of lock disconnection of the lock section (only one side) of the 4th example, They are the explanatory view which drawing 14 (b) is expanded at the time of lock disconnection of the lock section, and is shown, the explanatory view in which drawing 15 (a) shows the detail at the time of the lock of the lock section

(only one side) of the 4th example, and the explanatory view which drawing 15 (b) is expanded at the time of the lock of the lock section, and is shown. In addition, the same sign is given to the same part as said example.

[0034] In this 4th example, as shown in drawing 13 thru/or drawing 15, the lock device 30 of the outside medium tray 4061 in which attachment and detachment of the inside medium tray 4062 are interlocked with, and it operates is established.

[0035] When the inside medium tray 4062 is contained by the outside medium tray 4061, the spring made the lock pawl of the lock member 32 the crevice 31 of the inside medium tray 66, and it is settled in it by the force. The lock pawl of the lock member 32 does not go into the notching hole 34 of a slider, but the outside medium tray 4061 becomes withdrawal along with the slide rail 75.

[0036] Where the outside medium tray 4061 is contained on the body of a copying machine, suppose that the inside medium tray 4062 was pulled out. The head (lock pawl) of the lock member 32 in an order 2-way is pushed at the pars basilaris ossis occipitalis of the inside medium tray 4062, the lock pawl of the lock member 32 enters the notching hole 34 of a slider, and the outside medium tray 4061 is locked to the slide rail 75. If the inside medium tray 4062 is again contained on the body of a copying machine, the lock pawl of the lock member 32 will return to the crevice 31 of the inside medium tray 4062. In this way, the outside medium tray 4061 will be in an open condition to a slider 72.

[0037] By making it the device of such said 4th example, one is not going to notice the inside medium tray 4062 pulled out, but it is going to pull out the outside medium tray 4061, and a possibility of damaging medium trays 4061 and 4062 is lost. That is, when the inside medium tray 4062 is pulled out out of the copying machine, it is going to pull out the outside medium tray 4061, the inside medium tray 4062 collides with the body of a copying machine, AKYUREITO and the slider which exist inside the outside medium tray 4061 bend, and there is nothing it becomes impossible for the inside medium tray 4062 to contain in the outside medium tray 4061.

[0038] Next, the 5th example of this invention is explained with reference to drawing 16 - drawing 18. Drawing of longitudinal section in which drawing of longitudinal section in which drawing 16 (a) and (b) show the condition at the time of shutter disconnection of the 5th example and a front view, drawing 17 (a), and (b) show the condition at the time of shutter actuation of the 5th example and a front view, and drawing 18 are the explanatory views showing the sliding part of the shutter of the 5th example, and a medium tray.

[0039] In said 1st example, when the outside medium tray 1061 is pulled out, the drawer section of the medium tray 1062 inside the body 1100 of a copying machine serves as opening 48. When an object shuts medium trays 1061 and 1062 to this opening 48 in the state of *****, there is a possibility that medium trays 1061 and 1062 or a copying machine 1100 may be damaged. Or while people are editing this opening 48 accidentally, when medium trays 1061 and 1062 are shut, there is also a possibility that it may be injured at a hand.

[0040] In order to prevent such fault, when medium trays 1061 and 1062 are pulled out in a certain direction in what can be pulled out in the many directions by the body receipt mold medium tray of a copying machine, in the example of **** 5, a shutter 40 is formed so that opening 48 may not arise in other directions of a drawer.

[0041] The 5th example in the medium tray equipment of the double structure which can be pulled out to the transverse plane and delivery side 2-way like said drawing 1 - drawing 4 is shown in drawing 16 - drawing 18. In this 5th example, the shutter 40 is formed by the body 1100 of a copying machine on the opening 48 which pulls out the inside medium tray 1062. This shutter 40 serves as a configuration which has heights 42 in the tooth-back side of a copying machine 1100. Heights 42 are in the transverse-plane side of the notching section 77 of the outside medium tray 1061, and the tooth-back side serves as the cut section 43. The side by the side of the transverse plane of a shutter 40 and the side by the side of the transverse plane of heights 42 serve as the taper section. Moreover, the taper section is formed also for the cut section 43 the tooth-back side of the heights 42 of the outside medium tray 1061. The include angle of these taper sections is equal.

[0042] the time of the outside medium tray 1061 being contained by the body 1100 of a copying

machine -- the heights 41 of a shutter 40, and the base of the notching section 77 of the outside medium tray 1062 -- moreover, the inferior surface of tongue of a shutter 40 and the heights 42 of the outside medium tray 1061 touch, respectively. A shutter 40 is raised by heights 42 and the opening 48 which can pull out the inside medium tray 1062 is formed.

[0043] Next, actuation of the 5th example is explained. From the condition of drawing 16 , if the outside medium tray 1061 is pulled out, the taper section of a shutter 40 and medium trays 1061 and 1062 begins contact, and the shutter 40 falls gradually. The notching section 77 of the inferior surface of tongue of a shutter 40 and the outside medium tray 1061 contacts, and a shutter 40 closes the opening 48 of copying machine 1100 body for pulling out the inside medium tray 1062 (drawing 17).

[0044] In addition, while pulling out the outside medium tray 1061 after this, the inferior surface of tongue of a shutter 40 and the base of the notching section 77 of the outside medium tray 1061 are a sliding surface (drawing 18). Therefore, as for this part, it is desirable to form by an ingredient with small coefficient of friction, for example, polyacetal, fluororesin, etc.

[0045] Next, a motion of the shutter 40 when containing the outside medium tray 1061 is explained. From the condition of drawing 17 , it is begun to stuff the medium tray 1061 of the outside currently pulled out into copying machine 1100 body. While the inferior surface of tongue of a shutter 40 and the base of the notching section 77 of the outside medium tray 1061 grind, the outside medium tray 1061 goes into the body 1100 of equipment. Just before receipt of the outside medium tray 1061 is completed, the taper section of a shutter 40 and the outside medium tray 1061 starts contact, and a shutter 40 begins to be raised. if the outside medium tray 1061 is contained in a copying machine 1100 -- the base of the heights 41 of a shutter 40, and the notching section 77 of the outside medium tray 1061 -- moreover, the outside heights 42 and the outside shutter 40 of a medium tray 1061 contact, and as shown in drawing 16 , a shutter 40 will be in an open condition.

[0046] Making it the device of such 5th example can close the opening 48 for pulling out the inside medium tray 1062 produced by pulling out the outside medium tray 1061.

[0047] Next, explanation of said 2nd example shown in drawing 5 - drawing 10 and the 6th example of the medium tray equipment of a 2-way open sand mold same type is given using drawing 19 and drawing 20 . The perspective view at the time of shutter disconnection of the 6th example of the receipt mold form tray equipment which drawing 19 requires for this invention, and drawing 20 are the perspective views at the time of shutter actuation of the 6th example.

[0048] In this 6th example, the character type shutter 20 of KO is arranged on opening of the both sides (order side) of a medium tray 6063. The taper sections 20a and 20a are formed in the both ends 27 and 27 of the character of KO of this shutter 20. It pulls out on the slide side (right-and-left side of drawing 19) of a medium tray 6063, and the taper-like notching sections 25 and 25 are formed near the field (order side).

[0049] When the medium tray 6063 is contained by the body of equipment, as shown in drawing 19 , the edges 27 and 27 of the character of KO of a shutter 20 have ridden on the top-face part without the notching sections 25 and 25 of a medium tray 6063, and the shutter 20 is in the open condition.

[0050] Suppose that the medium tray 6063 was pulled out to the before side (the direction of an arrow head of drawing 19). The shutter 20 by the side of before touches the slide side of a medium tray 6063, and is not closed. Taper section 20a of the taper side of the notching sections 25 and 25 and the character of KO of a shutter 20 contacts, and a shutter 20 descends and closes the shutter 20 on the backside gradually along with a guide 23. after contact of taper section 20a of the character of the taper side of the notching sections 25 and 25 of a medium tray 6063 and KO of a shutter 20 is completed, it is shown in drawing 20 -- as -- a shutter 20 -- falling -- as -- the backside -- opening 48 is closed.

[0051] Next, a motion of the shutter 20 in case the medium tray 6063 is pulled out at the before side and contained in a copying machine 1100 is explained. Although not illustrated, the shutter 20 on the backside and the shutter by the side of before [same] have been wide supported and opened to the slide side of a medium tray 6063 (refer to drawing 20). Just before receipt of a medium tray 6063 ends the shutter 20 on the backside, taper section 20a of the both ends 27 of the character of KO of a shutter 20 and the taper side of the notching sections 25 and 25 of a medium tray 6063 start contact. With these

tapers, the shutter 20 is raised gradually. When receipt of a medium tray 6063 is completed, the edge 27 of the character of KO of a shutter 20 touches the part without the notching section 25 of the slide side of a medium tray 6063, and as shown in drawing 19, the opening 48 for the drawers on the backside [a medium tray 6063] opens it.

[0052] It is better to form with an ingredient with small coefficient of friction, since it is opened and closed, sliding on taper section 20a of the both ends 27 of the character of KO of a shutter 20 and an inferior surface of tongue, and the top face of the slide side of a medium tray 6063. In addition, the part shown by hatching by drawing 20 is a sliding surface, and this part slides with the shutter by the side of before in this example.

[0053] Next, the 7th example of this invention is explained with reference to drawing 21 - drawing 23. Drawing 21 is [the front view at the time of shutter closing of the 7th example and drawing 23 of the front view at the time of shutter actuation of the 7th example and drawing 22] the front views at the time of shutter actuation of the 7th example. Although said 6th example explained the shutter opened and closed along with a guide, the 7th example is explained as another example. The shutter 7040 in this 7th example was fished on equipment 7100 body by the link 120,120, and is gone down. There are heights 7042 in the transverse-plane side of the outside medium tray 7061. Taper section 7042a is formed in the tooth-back side (it sets to drawing and is left-hand side) of heights 7042, and the taper section and 7040a are formed in the transverse-plane side (it sets to drawing and is right-hand side) of a shutter 7040, respectively. The include angle of the taper of these taper sections 7040a and 7042a is set up equally.

[0054] Next, actuation of the 7th example is explained. When having contained the outside medium tray 7061 on equipment 7100 body, as shown in drawing 21, a shutter 7040 is raised by the heights 7042 of the outside medium tray 7061, and the opening 48 for pulling out the inside medium tray 7062 is open.

[0055] And if it begins to pull out the outside medium tray 7061, a shutter 7040 will descend, sliding in the outside medium tray 7061 and the taper sections 7042a and 7040a of a shutter 7040, as shown in drawing 23. Since the link 120,120 which has fished the shutter 7040 at this time is an parallel link, its vertical side of a shutter 7040 is always level.

[0056] if the outside medium tray 7061 is pulled out to some extent until as shown in drawing 22, it will descend further and a shutter 7040 will close the opening 48 for pulling out the inside medium tray 7062.

[0057] In addition, when containing the outside medium tray 7061 on copying machine 7100 body, a shutter 7040 is gradually raised, as shown along with taper section 7042a of the outside medium tray 7061 at drawing 23 from the condition of drawing 22, and will be in the condition of drawing 21 at the above-mentioned and reverse.

[0058] The direction which makes a shutter 7040 open and close using a link 120 like this 7th example can open and close still more smoothly than what opens and closes a shutter along with a guide.

[0059] Furthermore, the 8th example is explained. The explanatory view in which drawing 24 (a) shows the condition at the time of shutter disconnection of the 8th example, and drawing 24 (b) are the explanatory views showing the condition at the time of shutter closing. The shutter 8040 is hung by the wire 122 in this 8th example. The edge of this wire 122 has pulley 121,121 -- taken about, and is being fixed to the migration child 124. This migration child 124 is contained free [migration into a guide 126]. The spring with which 123 intervened between guides 126 with the migration child 124, and 125 are the stoppers with which the migration child 124 took care to have not jumped out of a guide 126.

[0060] Next, actuation of the 8th example is explained. When having contained the outside medium tray 8061 on the body of a copying machine, as shown in drawing 24 (a), the contact section 27 of the outside medium tray 8061 resists a spring 123, and is pushing in the migration child 124. Where the wire 122 which had the end fixed by this migration child 124 is pulled, the shutter 8040 is raised, and in it, it is opening the opening 48 for pulling out the inside medium tray 8062.

[0061] If the outside medium tray 8061 is pulled out from the body of a copying machine, the migration child 124 will move to a transverse-plane side (it is the right at drawing 24) by the force of a spring 123,

and will move and stop the migration child 124 till the place of a stopper 125. As shown in drawing 24 (b), a shutter 8040 falls completely, and the shutter 8040 which is in the reverse edge of a wire 122 with migration of this migration child 124 is closed ** about opening 48, when it descends and the migration child 124 moves till the place of a stopper 125.

[0062] In addition, if opening for pulling out a medium tray can be prevented from the ability doing no matter the breaker style of a shutter may be what thing, it cannot be overemphasized that it belongs to this invention.

[0063] Moreover, although said all explanation mentioned the medium tray equipment of a copying machine as the example, this invention is not restricted to this, and if it is the same configuration, it belongs to this invention also about form tray equipments, such as a paper output tray of a receipt mold of printers, such as a printer and facsimile, and a double-sided tray.

[Translation done.]

JAPANESE

[JP,06-247569,A]

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CLAIMS

[Claim(s)]

[Claim 1] In the receipt mold form tray equipment contained in a printer body, it has an outer frame tray and a seating-rim tray. Establish an open field in at least one side of said outer frame tray, and said seating-rim tray is arranged withdrawal from the open field of said outer frame tray. Receipt mold form tray equipment characterized by being able to pull out said outer frame tray and a seating-rim tray to coincidence by pulling out said outer frame tray to said body of equipment, or enabling it to pull out only said seating-rim tray to said body of equipment.

[Claim 2] Receipt mold form tray equipment according to claim 1 characterized by establishing the lock device locked so that said tray cannot be pulled out in other directions while pulling out said tray in a certain direction.

[Claim 3] In the receipt mold form tray equipment contained in a printer body, a form tray can be pulled out from said body of equipment along with a guide. And the lock device which said form tray is contained withdrawal to a cross direction, and contains said form tray on said body of equipment is established. Receipt mold form tray equipment characterized by having arranged the lock release lever when pulling out said form tray to a before side in the before side, and arranging the lock release lever when pulling out said form tray to the backside in the backside.

[Claim 4] Receipt mold form tray equipment according to claim 1 or 3 characterized by preparing covering closed so that opening may not arise in the drawer section of other directions while pulling out said tray in a certain direction.

[Translation done.]